

Mineral Industry Surveys

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FLUORSPAR IN THE SECOND QUARTER 2006

Reported fluorspar consumption in the second quarter was 135,000 metric tons (t), a decrease of 6% compared with the previous quarter and a 14% decrease compared with the figure for the second quarter of 2005. Consumption of fluorspar for hydrofluoric acid (HF) and aluminum fluoride was 113,000 t, an 8% decrease compared with the previous quarter and 17% lower than in the second quarter of 2005. Imports of fluorspar were 83,800 t, a decrease of nearly 54% compared with the previous quarter and 35% less than in the second quarter of 2005.

Some of the values (that should have included cost, insurance, and freight) reported by the U.S. Census Bureau for acid-grade fluorspar imports were missing insurance and freight costs. For the specific shipments that were missing these costs, adjustments were made by incorporating estimated freight costs derived from industry sources or published prices from trade journals. These adjustments are included in the import values for specific countries and affect all quarters and totals in table 3.

Defense Stockpile

At the end of the second quarter 2006, the Defense National Stockpile Center (DNSC) reported that unsold stockpile material consisted of about 14,900 short dry tons (SDT) (about 13,500 t) of metallurgical-grade fluorspar and about 1,520 SDT (about 1,380 t) of acid-grade fluorspar. Material committed for sale pending shipment totaled about 23,500 SDT (about 21,300 t) of metallurgical grade and 3,720 SDT (about 3,370 t) of acid grade.

In the latest sale, held in July, the DNSC announced the award of 6,686 SDT of metallurgical grade to Oxbow Carbon & Minerals LLC for \$74 per short dry ton (Ringquist, 2006).

Industry News

Central African Mining & Exploration Co. Plc (CAMEC) announced that it had appointed mineral and mining consulting group RSG Global Pty. Ltd. to perform resource evaluation work on CAMEC's 51%-owned Koornhoek fluorite project in South Africa. The work will involve resurveying all the original drill holes and twinning of about 10% of these holes to verify the results of the earlier drilling program. RSG Global was expected to complete the study by August 2006, after which

feasibility studies and permitting could be started (Central African Mining & Exploration Co. Plc, 2006§¹).

The original plans by South African fluorspar producer Sallies Ltd. to purchase Buffalo Fluorspar from Transvaal Mining and Finance Company Ltd. were temporarily halted because of concerns over divergent assay results from tests of the tailings on the property. Upon further testing and review of results, the company announced that it was confident that the quantity and quality of fluorspar in the Buffalo tailings dumps were in line with its requirements and that its plan to reprocess the tailings was economic and would deliver an adequate rate of return. The company consequently decided to proceed with the acquisition albeit on different terms. The aggregate price for these assets was R65 million (about \$9.7 million). The assets acquired were the fluorspar properties (a portion of the overall 717.5 hectares owned by Transvaal Mining), all of the slimes and/or tailings on the fluorspar properties, and all plant and other production equipment on the fluorspar properties associated with fluorspar recovery (Ernst & Young Sponsors Pty. Ltd., 2006§).

Okorusu Fluorspar (Pty.) Ltd. of Namibia announced that it expects 2006 production to increase by about 10%, which will allow exports to Europe totaling 127,000 wet metric tons (about 116,000 dry metric tons). Okorusu Fluorspar is a subsidiary of Solvay S.A. and almost all of its acid-grade fluorspar is shipped to Solvay's HF plants in Bad Wimpfen, Germany, and Porta Marghera, Italy (Mining Engineering, 2006).

Minemakers Ltd. (West Perth, Australia) announced that it was reexamining a polymetallic prospect in Tasmania known as the Moina skarn. Based on higher grade and relatively shallow fluorspar intersections, a previous exploration company made a preliminary resource estimate of 26.5 million metric tons at 18% CaF₂. The deposit was originally identified in the 1970s, and is the largest known fluorspar resource in Australia (Minemakers Ltd., 2006§). The company will be giving a presentation on its plans for the project at the upcoming fluorspar conference scheduled for October 22-24, 2006, in Las Vegas, NV.

¹References that include a section mark (§) are found in the Internet References Cited section.

Fluorochemical News

Phase one of the feasibility study to build a 30,000-metric-ton-per-year (t/yr) HF and aluminum fluoride plant in South Africa has been completed. The second phase, which includes an environmental impact assessment, basic design, final costing, and business plan, is scheduled for completion in the fourth quarter 2006. A decision on the plant's specific location was expected by the end of August, but it is likely to be near the coast to optimize logistics (Moodley, 2006§).

Arkema announced plans to increase production capacity of polyvinylidene fluoride (PVDF) by 2,000 t/yr at its Calvert City, KY, plant. The project is expected to cost \$12 million and be completed in early 2008 (Arkema, 2006b§). PVDF is a fluoropolymer with resistance to extreme temperatures and corrosive chemicals and is used to manufacture pipes and parts for pumps and valves. Arkema also announced the doubling of capacity at its hydrochlorofluorocarbon (HCFC) 22 plant in Changshu, China. The HCFC 22 produced at the plant is used as a refrigerant fluid for air conditioning and commercial refrigeration and as a feedstock for the manufacture of fluoropolymers such as polytetrafluoroethylene (PTFE) (Arkema, 2006a§).

Solvay announced plans to construct a PTFE micronized powder production plant in China. PTFE micronized powders are used in a variety of applications, such as manufacturing of cosmetics, high-gloss inks, high-performance lubricants, and heat-resistant materials. The plant will be located in the Jiangsu High-Tech Fluorochemical Industrial Park in Changshu and will be operated by a newly formed Solvay subsidiary—Solvay Specialty Polymers Changshu (Solvay S.A., 2006§).

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TABLE 1
SALIENT FLUORSPAR STATISTICS¹

(Metric tons, unless otherwise specified)

	2005			2006		
	Second quarter	Third quarter	Fourth quarter	First quarter	Second quarter	Total
Imports for consumption:	129,000	153,000	120,000	181,000	83,800	265,000
Average value per ton, c.i.f. U.S. port, acid grade ²	\$201	\$208	\$210	\$221	\$214	\$219
Average value per ton, c.i.f. U.S. port, metallurgical	\$95	\$92	\$94	\$104	\$96	\$100
Exports	6,060	20,100	4,430	3,850	3,790	7,640
End of quarter stocks, consumer	95,300	109,000	80,800	109,000	78,200	XX
Fluorspar equivalent of imported hydrofluoric acid	50,700	48,400	53,100	60,900	56,500	117,000
Fluorspar equivalent of imported cryolite	1,110	809	707	1,640	1,130	2,770
Quarterly reported fluorspar consumption	157,000	145,000	119,000	143,000	135,000	278,000

XX Not applicable.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Average values per ton have been adjusted by the USGS using published prices and data from industry sources and may not agree with values calculated strictly from U.S. Census Bureau data.

TABLE 2
CONSUMPTION OF FLUORSPAR BY END USE AND ASSAY RANGE¹
(DOMESTIC AND FOREIGN IN THE UNITED STATES)

(Metric tons)

End use or product	First quarter 2005			Second quarter 2005			
	More than 97% calcium fluoride	Not more than 97% calcium fluoride	Total	More than 97% calcium fluoride	Not more than 97% calcium fluoride	Total	
Hydrofluoric acid and aluminum fluoride	139,000	--	139,000	136,000	--	136,000	
Metallurgical	6,710	8,700	15,400	4,240	10,100	14,300	
Other uses or products ²	5,140	--	5,140	7,250	--	7,250	
Total	151,000	8,700	160,000	147,000	10,100	157,000	
Stocks, end of quarter ³	116,000	13,700	130,000	87,300	8,010	95,300	

End use or product	Third quarter 2005			Fourth quarter 2005			2005
	More than 97% calcium fluoride	Not more than 97% calcium fluoride	Total	More than 97% calcium fluoride	Not more than 97% calcium fluoride	Total	Year to date
Hydrofluoric acid and aluminum fluoride	127,000	--	127,000	106,000	--	106,000	508,000
Metallurgical	4,290	6,940	11,200	4,350	3,310	7,660	48,600
Other uses or products ²	7,200	--	7,200	5,310	--	5,310	24,900
Total	138,000	6,940	145,000	116,000	3,310	119,000	582,000
Stocks, end of quarter ³	98,000	10,800	109,000	69,600	11,200	80,800	80,800

End use or product	First quarter 2006			Second quarter 2006			2006
	More than 97% calcium fluoride	Not more than 97% calcium fluoride	Total	More than 97% calcium fluoride	Not more than 97% calcium fluoride	Total	Year to date
Hydrofluoric acid and aluminum fluoride	123,000	--	123,000	113,000	--	113,000	236,000
Metallurgical	4,160	8,160	12,300	4,520	8,880	13,400	25,700
Other uses or products ²	8,080	--	8,080	8,520	--	8,520	16,600
Total	135,000	8,160	143,000	126,000	8,880	135,000	278,000
Stocks, end of quarter ³	93,700	15,600	109,000	53,900	24,300	78,200	78,200

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Includes acid grade used in enamel, glass and fiberglass, steel castings, and welding rod coatings.

³Stocks include distributor stocks (excluding National Defense Stockpile holdings) and consumer stocks for hydrofluoric acid and aluminum fluoride.

TABLE 3
U.S. IMPORTS FOR CONSUMPTION OF FLUORSPAR, BY COUNTRY AND VALUE^{1,2}

	2005						2006					
	Second quarter		Third quarter		Fourth quarter		First quarter		Second quarter		Year to date	
	Quantity	Value ³	Quantity	Value ³	Quantity	Value ³	Quantity	Value ³	Quantity	Value ³	Quantity	Value ³
	(metric tons)	(thousands)	(metric tons)	(thousands)	(metric tons)	(thousands)	(metric tons)	(thousands)	(metric tons)	(thousands)	(metric tons)	(thousands)
Containing more than 97% calcium fluoride:												
China	89,700	\$18,700	97,400	\$21,800	64,800	\$14,300	132,000	\$29,900	44,000	\$10,100	176,000	\$40,000
France	--	--	--	--	--	--	--	--	--	--	--	--
Germany	--	--	--	--	--	--	--	--	--	--	--	--
Mexico	10,400	1,780	13,700	2,420	10,200	1,800	11,300	2,140	16,700	2,950	28,000	5,090
Mongolia	8,860	1,490	10,100	1,550	13,500	2,560	4,940	988	--	--	4,940	988
South Africa	9,870	1,860	22,400	4,050	20,200	4,200	17,100	3,410 ^r	8,040	1,610	25,100	5,020
United Kingdom	--	--	1	3	148	23	2	16	2	4	4	20
Total	119,000	23,900	144,000	29,800	109,000	22,900	165,000	36,500 ^r	68,800	14,700	234,000	51,200
Containing not more than 97% calcium fluoride:												
Canada	41	17	--	--	--	--	--	--	--	--	--	--
Mexico	10,600	1,000	9,020	828	11,400	1,070	16,200	1,680	15,000	1,450	31,300	3,130
Other	--	--	--	--	--	--	--	--	--	--	--	--
Total	10,700	1,020	9,020	828	11,400	1,070	16,200	1,680	15,000	1,450	31,300	3,130
Grand total	129,000	24,900	153,000	30,700	120,000	24,000	181,000	38,200	83,800	16,100	265,000	54,300

^rRevised. -- Zero.

¹Imports for consumption include imports of immediate entry, and warehouse withdrawals.

²Data are rounded to no more than three significant digits; may not add to totals shown.

³Cost, insurance, and freight at U.S. ports. Values for some countries have been adjusted by the USGS using published prices and data from industry sources.

Source: U.S. Census Bureau.

TABLE 4
IMPORTS FOR CONSUMPTION OF HYDROFLUORIC ACID¹

	2005						2006					
	Second quarter		Third quarter		Fourth quarter		First quarter		Second quarter		Year to date	
	Quantity (metric tons)	Value ² (thousands)	Quantity (metric tons)	Value ² (thousands)	Quantity (metric tons)	Value ² (thousands)	Quantity (metric tons)	Value ² (thousands)	Quantity (metric tons)	Value ² (thousands)	Quantity (metric tons)	Value ² (thousands)
Canada	9,750	\$10,500	12,100	\$12,600	11,200	\$11,100	12,000	\$12,800	11,100	\$13,600	23,200	\$26,400
China	270	177	257	161	134	92	250	215	409	297	659	512
Germany	77	165	105	223	112	149	82	163	105	238	187	401
Japan	293	720	227	543	442	1,010	305	686	276	596	581	1,280
Mexico	23,300	22,300	19,500	18,500	23,300	23,300	27,700	27,300	25,600	25,300	53,300	52,600
Other ³	122	283	80	246	151	355	150	384	113	264	263	648
Total	33,800	34,200	32,300	32,300	35,400	36,000	40,600	41,600	37,600	40,300	78,200	81,900

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Cost, insurance, and freight at U.S. ports.

³Includes India, Italy, the Republic of Korea, the Netherlands, Singapore, Switzerland, and Taiwan.

Source: U.S. Census Bureau.